

Previously Unnamed Australian *Drosera* and Their Published Names.

The following list is compiled from Allen Lowrie's book, Vol 2 and a formal description will be written by Dr. Neville Marchant at a future date. This list was sent in by Gordon Snelling.

- D. barbiger a Planchon = syn D. drummond i
- D. callistos = D. sp. 'The Lakes' (State Forest, Brookton Hwy.)
- D. closterostigma = D. sp. 'Cataby'.
- D. coolamon = D. sp. 'Kalbarri'
- D. echinoblasta = D. sp. 'camallo'
- D. eneabba = D. sp. 'eneabba'
- D. enodes = D.sp. 'Omissa-Marchant'
- D. ericksonae = D.sp. 'Erickson's-omissa'
- D. helodes = D. sp. 'bullsbrook'
- D. hyperostigma = D. sp. 'platy-O'brien'
- D. leioblasta = D. sp. 'Steve's-palacea'
- D. manniana = D. sp. 'Bannister'
- D. nitidula ssp omissa x D. occidentalis ssp occidentalis= D. sp " Lake Badgerup"
- D. occidentalis ssp. australis = D. sp. 'South coast'
- D. omissa = D. nitidula ssp omissa
- D. oreopodion = D. sp. 'Armadale'
- D. rechingeri = D. sp. 'Regan's Ford'
- D. roseana = D. sp. 'Steve's-dichro'
- D. spilos = D. sp. 'muchea'
- D. walyunga = D. sp. 'Walyunga' (National Park)

LIBRARY

JUL 22 1991

NEW YORK
BOTANICAL GARDEN

Corrected 6-12-90

The *Drosera petiolaris* Complex

By Allen Lowrie, 6 Glenn Place, Duncraig, 6023,
Western Australia

Following a close look at the *Drosera petiolaris* complex in the northern regions of Australia, the author has discovered a number of new taxa in this complex that warrant specific botanical classification.

Katsuhiko Kondo of Japan recognized three new species in the *D. petiolaris* complex and formally described them in Bot. Soc. Ser. 2, 57: 51-60 (1984). The three new *Drosera* species were *D. falconeri*, *D. lanata* and *D. dilatato-petiolaris*. The author agrees with K. Kondo's findings that these three new *Drosera* species are indeed species although they are clearly related to *D. petiolaris*.

Taxonomically, these three species are placed in *Droseraceae*-Section *Lasiocephala* along with *D. petiolaris* and *D. neo-caledonica* from New Caledonia. To this list, the author feels recognition of four more taxa, clearly related to the *D. petiolaris* complex, warrant species classification.

The four new *Drosera* only have field names at this stage and are described and illustrated in the following pages. To give the reader a better understanding of all the Australian *D. petiolaris* complex plants, descriptions and general observations of each taxa is as follows:

D. petiolaris R. Br ex DC., Prodr. 1: 318 (1824).

The type was collected on the Cook voyage by J. Banks on the Endeavor River, Queensland. This species is also found in the Darwin region and no doubt at suitable locations in between. *D. petiolaris* has also been recorded from New Guinea. This species generally grows in very shallow water and is easily recognized by its erect and semi-erect, long, narrow petioles and lamina having extremely long retentive glands.

D. falconeri Kondo and Tsang.

This species was first discovered by a Mr. Falconer (Darwin region) about ten years ago while collecting tropical fish for the late Peter Tsang of Queensland. Specimens were sent to Peter who in turn passed specimens onto Bill Lavarack of Queensland, a botanist with the Queensland National Parks. Specimens were also passed onto the author at this time. Only one location for *D. falconeri* was known...Finniss River, exactly where went to the grave with Peter Tsang. The Finniss River is nearly 100 Km long and branches in a number of directions in the upper reaches. Recent field studies however have turned up a number of locations for *D. falconeri*. It now can be stated that this species is common in the northern region of the Northern Territory. *D. falconeri* is unique in having the largest lamina within the *D. petiolaris* complex. Old, very mature plants produce reniform-shaped lamina 3cm across. In the field, the entire plant is reddish-maroon in color. The leaves within the rosette are always pressed flat to the soil surface.

D. dilatato-petiolaris Kondo.

This species is common in the Darwin region and is the plant that was described and illustrated by L. Diels (1906) in Das Pflanzenreich. This hardy species grows on slightly higher ground than *D. petiolaris*. The width of the petiole is variable but generally remains in the 3-5mm width from one habitat to the next. This species commonly produces plantlets from the base of the parent and forms large clumps over a number of years.

D. lanata Kondo

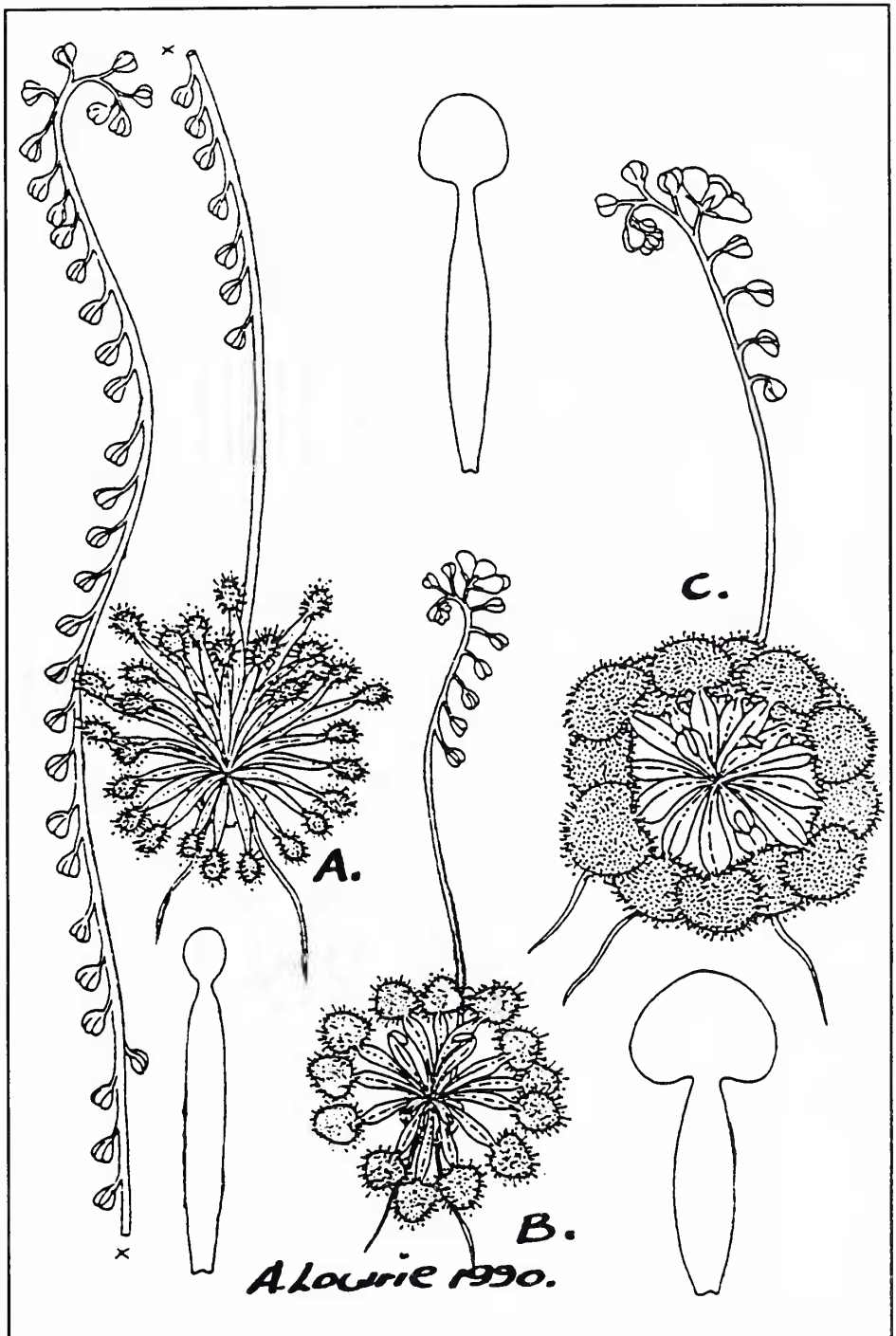
The author has not seen this species in the field yet but hopes to in April 1990 on the next expedition to Northern Australia. From Kondo's paper and material housed in the Northern Territory and Western Australian Herbariums, *D. lanata* is easy to recognize. This species has narrow petioles which are covered with numerous dendritic hairs (see illustration). This species forms a very leafy compact rosette and with the addition of the silvery, densely-placed, wooly, dendritic hairs-especially dense at the centre of the rosette, make this species unmistakable.

To the above recognized species, the author feels the following taxa warrant specific botanical recognition as species in their own right.

(NOTE! aff.=affinis= allied to.)

D. petiolaris aff. 'erect'

This taxa has been collected a number of times from different locations in the Northern Territory. This species grows in association with sandstone outcrops, generally where the water run-off is the greatest. This species can grow up to 35cm in height. Shorter specimens are self-supporting in their erect stance, however larger specimens generally lean on nearby herbs for support. The author has not seen specimens in the field as yet but has studied a number of pressed specimens in the Northern Territory and Western Australian Herbariums, as well as one live specimen kept for a short time at the Western Australian Herbarium. This species is unique and is easily recognized by its erect growth and extremely narrow petioles.



A. *D. dilatato-petiolaris*
 B. *D. falconeri* x *D. dilatato-petiolaris*
 C. *D. falconeri*

D. petiolaris aff. "medium rosette"

This taxa produces a very compact basal rosette of leaves. The diameter of the rosette is at best only 5cm across. The inflorescence and scape, however, is up to 60cm in height. Three scapes per basal leafy rosette is common and appears quite out of proportion to the rosette. The petals are generally pink. The style/stigmas on most specimens are all white. However, pink stigmas are found on a few specimens. Although, all species within the *D. petiolaris* complex have varying degrees of hairiness on the scape and inflorescence, *D. petiolaris* aff. "Medium rosette" is the woolliest. This species is notable for having extremely long, woolly hairs on the scape and within the inflorescence arrangement. The fruits are large and woolly. This species also has strange hook-like projections above the anthers which at this stage appear to be unique only to this plant within the *D. petiolaris* complex.

D. petiolaris aff. 'Mini rosette'

The leafy basal rosette of this species is similar in arrangement to *D. petiolaris* aff. 'Medium rosette'. However, the lamina of the 'Mini rosette' is orbicular where the lamina of the 'Medium rosette' is elliptic-shaped. The leafy basal rosette of the 'Mini rosette' is at best 3cm in diameter, and generally smaller. In cultivation, this species can be likened to a pygmy *Drosera* (without the stipule bud). The inflorescence arrangement is short (up to 12cm in height) and like the 'Medium rosette' is extremely woolly. The petals are generally white with the overall flower diameter only 8mm across.

D. petiolaris aff. 'Kununurra'

This remarkable species has the same hairs and hairiness as *D. lunata*. However, this species in all other respects is quite different to *D. lunata*.

The author has observed specimens in the field up to 16cm in diameter, 6-10cm diameter, however, is the average flowering size. This species grows in sandy soils often near the bases of sandstone outcrops. Mature plants commonly form clumps of plants up to 30cm in diameter. Studies to date show the inflorescence arrangement on this species to be unique within the *D. petiolaris* complex. The arrangement is a one-sided raceme with the pedicels (nearly in pairs) alternating along the scape. The petals range in colour from white to pink with various shades inbetween. The flowers are large. The width and shape of the petioles is unusual and this combined with a few other facts show this taxa to be quite different to other plants within the *D. petiolaris* complex.

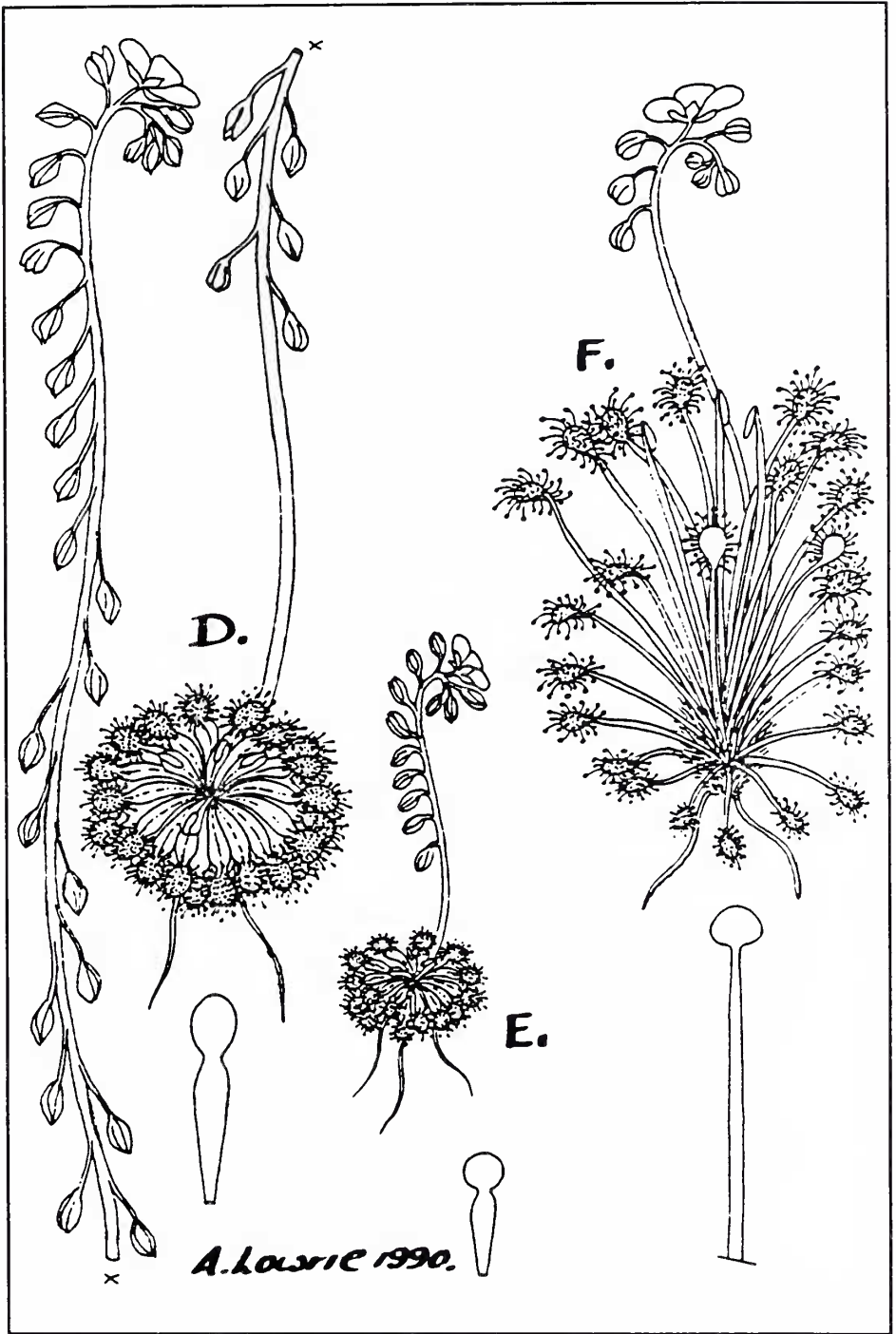
Hybrids between species have been found at a number of locations between a few of the above species. In cultivation, these hybrids are quite variable in overall appearance. However, all exhibit the basic format of a plant roughly equal between the two parents. The parents of these hybrids have been established in the field where hybrids were found. All hybrids produce robust growth in cultivation.

D. falconeri x *D. dilatato-petiolaris*

Some specimens are 4 to 5cm in diameter and others 10cm in diameter. The lamina on some hybrids is small and on others large. Some remain as single plants like *D. falconeri*. Others produce plantlets from the base of the parent plant like *D. dilatato-petiolaris*. Overall, there is about four recognizable forms amongst these hybrids and all are worthy of cultivation.

D. petiolaris x *D. dilatato-petiolaris*

This hybrid is intermediate between the two species. The hybrid is a short, compact



D. *D. petiolaris* aff. 'Medium rosette'

E. *D. petiolaris* aff. 'Mini rosette'

F. *D. petiolaris*

plant up to 4cm in diameter, with erect and semi-erect leaves. Its similar to *D. petiolaris* but more organized in even arrangement. Plantlets are produced from the base of the parent plant which can be detached and potted separately. The petioles are glabrous and green. The lamina generally is red.

As more field trips are undertaken, more hybrids no doubt will be discovered. Seed has been collected from the natural hybrid *D. falconeri* x *D. dilatato-petiolaris* and the seed appears full and normal. These have been sown and hopefully, they will be viable and germinate. If this is the case, it maybe possible to produce selected hybrids in cultivation.

Cultivation

All of the species described in this paper are easy to grow. Being tropical plants, they enjoy the warmth from Grolux light setups. The author is growing all species except *D. lanata* and *D. petiolaris* aff. 'Erect' under the same conditions in two housing arrangements. 1) An aquarium under a patio using two Grolux lights and one cool-white fluorescent lamp for illumination. 2) A fiberglass fully closed enclosure on a bench, under 50% shade-cloth in full sun.

The pots are regular plastic pots. The soil medium is straight German peat moss-put through a 8mm sieve to remove the coarse material. The pots are watered by the tray method to a depth of 1cm. In cultivation, these tropical plants continue to grow all year. In the wild, they go dormant in the dry season. Because of this dry season adaptation, each species is equipped with a 'bulb-like' reserve at the base of the leaves. In the wild, a plant can lose all its leaves in the dry season and remain dormant. When the rainy season (the wet) arrives, new growth is produced from the 'bulb-like' stock. This 'bulb-like' arrangement makes these plants very hardy and extremely hard to kill in cultivation.

All of these species produce beautiful leaf colouring in good natural light. Unfortunately, under artificial lighting, most of these colours are lost. The plants, although growing well, lean more towards various shades of green. Better colours however, can be achieved by placing the plants closer to the lights.

Propagation

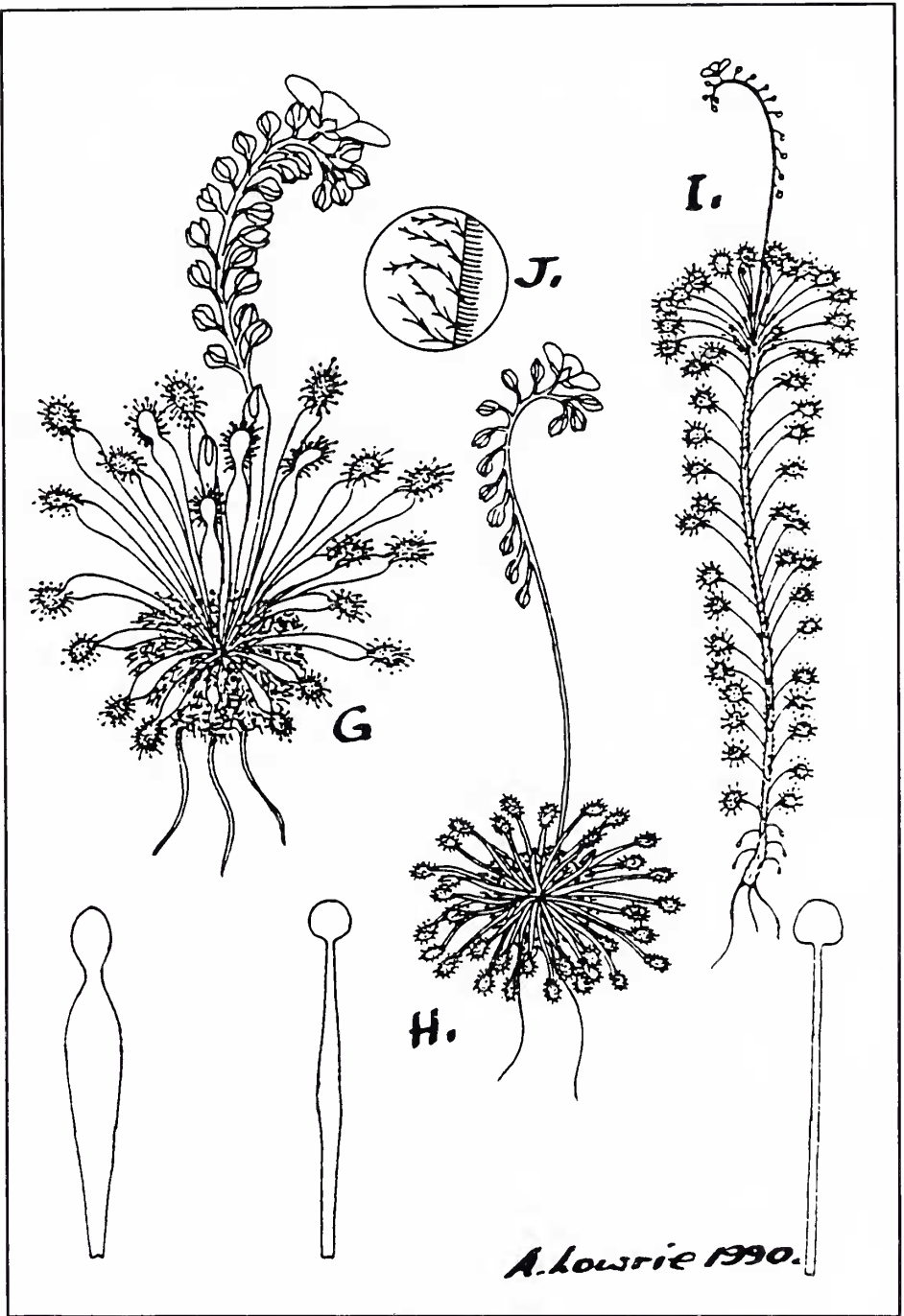
Seed works well but vegetative propagation at this stage is purely experimental in cultivation. Field observations have identified that all species are capable of vegetative propagation. Specimens of three species, *D. falconeri*, *D. petiolaris* and *D. dilatato-petiolaris* have been found with plantlets growing from the scape in tight-knit groups. These plantlets can be detached and grown as individuals.

In Kondo's book 'C.P. of the World in Colour', page 58, the right hand photo is that of *D. petiolaris*. If the reader looks carefully at this photo, the inflorescence on the right has a clump of small plantlets growing on the scape. (The centre photograph is *D. dilatato-petiolaris* and the left photograph is maybe *D. lanata*).

Observations have shown that some plants growing in the author's aquarium setup are producing outgrowths on some of the leaves. These outgrowths may turn into plantlets in time. These are being watched carefully to study their development cycle.

The author can see an exciting future for these plants in CP collections around the world. Hopefully, various methods will evolve through experimentation with propagation.

The possibilities of more species being discovered in the *D. petiolaris* complex is good. The author has seen a number of pressed specimens from expeditions to the wild and remote Mitchell Plateau region of North West-Western Australia. Some of the



G. *D. petiolaris* aff. 'Kununurra'

H. *D. lanata*

I. *D. petiolaris* aff. 'Erect'

J. Dendrite hairs

A. Lowrie 1990.

specimens appear to be new species of *Drosera* that warrant further collections and study for possible species classification.

CP Fountain Jar

By Ken D. Jones (P.O. Box 24218, San Jose, CA 95124)

As anyone who has ever tried to raise carnivorous plants knows, they generally don't have any tolerance for being allowed to dry out.

The general methods for preventing this are to grow in a sealed terrarium, water each plant everyday, or stand the pots in a shallow tray of water.

I have tried each of these methods with limited success. When I tried to grow in a sealed terrarium, the live spagnum grew faster than and soon overwhelmed the smaller plants.

When I switched to a peat and sand mix, it too sprouted and rapidly buried smaller seedlings, I next tried individual watering. It only took one vacation with a 'forgetful' friend to watch over things to convince me that this wasn't the perfect solution either. So, I switched back to terrariums, but put the plants in individual pots sitting in 1/4 inch of water. This had the advantage of providing constant water and high enough humidity so the plants grew better than the moss. Unfortunately, another vacation proved that this was not the perfect solution either. (Crispy sundews don't recover too well)

As this point I was reminded of a device we used to use to provide water for our chickens. It consisted of a tray with a bottle of water inverted in it. A small channel under the lip of the bottle would allow water out of the bottle and air in until the water got up to the point that no more air could enter and the flow stopped. Unfortunately, while this system could maintain the needed 1/4 inch of water, it took up way too much space in the terrarium.

As a result, I went over to my local hardware store and spent a day or so trying to fit together various bits of plumbing to accomplish the same thing using a lot less space. After many false starts (and attempts to change the laws of physics) I finally ended up with the design shown in the photos. It consists of a two-liter bottle, a 3/4 inch slip to 1/2 inch threaded adapter and a 1/2 inch slip cross fitting. In the center of the cross fitting I drilled/carved/filed a half inch hole. Next, the inside of the 3/4 slip fitting must be roughed up and the neck of the bottle filed down to fit into it. The two are then glued together with a silicone aquarium sealant and allowed to cure.

After the sealant has cured, the bottle is filled with water and inverted into the hole drilled in the cross fitting. Depending on the fitting used, the threaded portion may have to be filed shorter to get the water to flow and then to adjust for the desired water level. In a ten gallon aquarium a two-liter bottle will last me about two weeks and takes up less space than a four-inch pot.